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10/658,495	09/08/2003	Shung-Huci Chang	890-007.002	2034

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EXAMINER	
PARSONS, THOMAS H	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/658,495	CHANG ET AL.	
	Examiner	Art Unit	
	Thomas H. Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *24-35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 24-35 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 22 December 2005.

Drawings

2. The drawings are objected to because of the following informality:

Figure 6C, suggest changing "220" to "200".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

Page 7, line 25, suggest changing "100" to --160--;

Page 8, line 3, the text, "This byproduct is delivery..." appears awkwardly worded;

Line 21, suggest changing "fuel cell module 110" to --fuel replenishing unit--

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 10-15, 19, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchida et al. (6,057,051).

Claim 1: Uchida et al. in Figures 1 and 2 disclose a method of improving operating efficiency of a fuel cell (4) in a portable electronic device (1), the fuel cell (4) comprising:

a cell compartment (5) for containing a fuel component (hydrogen); and

a fuel activation unit (4) disposed adjacent to the cell compartment (5) for activating the fuel component in order to generate electricity in the portable electronic device (see col. 5: 54-col. 6: 3), the method comprising the steps of:

heating at least part of the fuel component (5) for providing a heated fuel part (col. 6: 49-59); and

causing the heated fuel part to engage with the fuel activation unit (4) in the cell compartment for activation.

Claim 2: Uchida et al. in Figures 1 and 2 further disclose a further cell compartment for containing a further fuel component (air), the further cell compartment disposed adjacent to the fuel activation unit on a different side from the fuel cell compartment (see col. 5: 54-col. 6: 3), the method further comprising the steps of:

heating at least part of the further fuel component for providing a further heated fuel part; and

causing the further heated fuel part to engage with fuel activation unit in the further cell compartment (col. 8: 21-23).

Claim 3: Uchida et al. disclose that the portable electronic device comprises at least one electronic component which generates heat, and wherein the heating step uses the heat generated by the at least one electronic component (col. 8: 24-30).

Claim 4: Uchida et al. disclose that the portable electronic device (1) comprises a heat removal device (14a, 22a as shown in Figures 19-21) disposed in relation to the electronic component for channeling at least part of the heat away from the electronic component, and

wherein the heat channeled away by the heat removal device is used in the heating (col. 9: 4-28 and col. 8: 47-col. 9: 28).

Claim 5: Uchida et al. disclose that the portable electronic device comprises at least one electronic component which generates heat, and a heat removal device (14a, 22a as shown in Figures 19-21) disposed in relation to the electronic component for channeling at least part of the heat away from the electronic component, and wherein the heat channeled away by the heat removal device is used in the heating (col. 9: 4-28 and col. 8: 47-col. 9: 28).

Claim 10: Uchida et al. disclose that the portable electronic device (1) has a replenishing unit (5) for storing the fuel component and conveying the fuel component to the cell compartment in the fuel cell (4) via a fuel conduit (6b), the fuel conduit operatively connecting the replenishing unit and the cell compartment, and wherein part of the fuel component is heated through the fuel conduit as the fuel component is conveyed to the cell compartment in the fuel cell (col. 6: 13-23 and 49-59).

Claim 11: Uchida et al. disclose that the portable electronic device (1) comprises at least one electronic component which generates heat, and a heat removal device (14a, 22a as shown in Figures 19-21) disposed in relation to the electronic component for channeling at least part of the heat away from the electronic component, and wherein at least part of the fuel conduit is disposed in the proximity of the heat removal device so that part of the fuel component is heated through the conduit using the heat channeled away by the heat removal device (col. 9: 4-28).

Claim 12: Uchida et al. disclose that at least a part of the fuel conduit is disposed in a heat exchanger (col. 9: 16-18), which is disposed in the proximity of the heat removal device (14a, 22a as shown in Figures 19-21) so as to allow the heat channeled away by the heat removal

device to heat part of the fuel component in the fuel conduit via the heat exchanger (col. 8: 47-col. 9: 28).

Claim 13: Uchida et al. discloses that the heat exchanger (col. 9: 16-48) is disposed in contact to the heat removal device (14a, 22a) so as to allow the heat channeled away by the heat removal device to heat the heat exchanger by way of conduction (col. 8: 47-col. 9: 28).

Claim 14: Uchida et al. disclose that the heat exchanger (col. 9: 16-18) is placed adjacent to the heat removal device (14a, 22a as shown in Figures 19-21) so as to allow the heat channeled away by the heat removal device to heat the heat exchanger by way of radiation or convection (col. 8: 47-col. 9: 28).

Claim 15: Uchida et al. discloses in Figure 19 that the heat removal device (22a) comprises a heat-sink (col. 8: 47-col. 9: 28).

Claim 19: Uchida et al. disclose that the heat removal device (14a, 22a) comprises an air blower (22a) (col. 8: 47-col. 9: 28).

Claims 21 and 22: Uchida et al. on col. 1: 4-9 and col. 7: 49-50 21 disclose that the rein the portable electronic device comprises a notebook computer, and a tablet personal computer.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. as applied to claim1 and 2 above, and further in view of Gamo et al. (5,976,725).

Claims 6-9: Uchida et al. are as applied, argued, and disclosed above, and incorporated herein, and wherein further Uchida et al. disclose a membrane electrode assembly for activating the alcohol in the cell compartment and a fuel component comprising a hydrogen occluding alloy (see Figures 29-30 and col. 5: 17-51).

Uchida et al. are silent as to the fuel component comprises substantially a mixture of alcohol and water, and the alcohol comprises substantially methanol.

Gamo et al. on col. 1: 26-31 disclose a fuel component comprising methanol or hydrogen occluding alloy. See also col. 9: 8-43.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the hydrogen occluding alloy of Uchida et al. with the methanol of Gamo et al. because both disclose fuel components for a fuel cell used in a portable electronic device, and Gamo teaches a fuel cell that would have provided a fuel cell capable of operating for a long time, small in size and lighter in weight thereby improving the overall performance of the portable electronic device.

Further, the Uchida et al. combination would obviously provide the claimed direct methanol fuel cell.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. as applied to claims 1 and 3 above.

Uchida et al. are as applied, argued, and disclosed above, and incorporated herein.

Claim 16: Uchida et al. disclose that that the at least one electronic component in the portable electronic device (1) is a CPU. More particularly, Uchida et al. disclose that the portable electronic device is a personal computer which would obviously provide an electronic component such as a CPU as is known by one of ordinary skill in the art of computer hardware. See col. 1: 4-9 and col. 7: 48-50).

Claim 17: Uchida et al. disclose that the heat removal device comprises a heat-sink (22a as shown in Figures 19-21), which is disposed in contact to the CPU in order to channel away the heat produced by the CPU. More particularly, Uchida et al. discloses mounting the fuel cell on a portable electronic device which would obviously provide contact with the CPU (col. 8: 47-col. 9: 28).

Claim 18: Uchida et al. disclose that the heat removal device (14a, 22a) further comprises an air blower (21a) disposed in the proximity of the heat-sink (22a) for further channeling away the heat produced by the CPU (col. 8: 47-col. 9: 28).

9. Claims 20 and 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Uchida et al. as applied to claims 1, 6 and 8 above, and further in view of Streckert et al. (6,447,945).

Claim 20: Uchida et al. are as applied, argued, and disclosed above, and incorporated herein.

Uchida et al. discloses that the portable electronic device (1) comprises at least a CPU which generates heat, and a heat removal device (14a, 22a) positioned in relation to the CPU to channel away the heat generated by the CPU, and wherein the fuel cell also produces water as a byproduct in the further cell compartment. More particularly, Uchida et al. discloses mounting

the fuel cell on a portable electronic device which would obviously provide contact with the CPU (col. 8: 47-col. 9: 28).

Uchida et al. does not disclose the step of removing at least a part of the byproduct water away from the further cell compartment by using the heat channeled away by the heat removal device.

Streckert et al. disclose the step of removing at least a part of the byproduct water away from the further cell compartment by using the heat channeled away by the heat removal device (abstract, col. 1: 49-57, col. 2: 34-col. 3: 30 and 41-59, and col. 4: 22-col. 6: 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Uchida et al. by incorporating the water removal step of Streckert et al. because Streckert et al. disclose an effective and efficiency method of removing byproduct water that would have effectively controlled fuel cell temperature thereby improving the overall performance of the fuel cell and portable electronic device.

Claim 23: Streckert et al. further disclose that the heated fuel part has a temperature substantially in a temperature range of 50 °C. to 85 °C col. Col. 6: 1-3).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas H Parsons
Examiner
Art Unit 1745

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PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER